WATER SAFE FOR SWIMMING IMPLEMENTATION PLAN

By 2008, restore water quality to allow swimming in not less than 5 percent of the stream miles and lake acres identified by states in 2000 as having water quality unsafe for swimming[1].

Recreational waters, especially beaches in coastal areas and the Great Lakes, provide outstanding recreational opportunities for many Americans. Swimming in some recreational waters, however, can pose a serious risk of illness as a result of exposure to microbial pathogens. In some cases, these pathogens can be traced to wastewater treatment plants, malfunctioning onsite systems, and discharges from storm water systems. In other cases, they can be traced to agricultural operations, and naturally occurring animal populations. Approaches identified in the implementation plan for protecting the quality of the Nation's recreational waters include:

- working with state, tribal and local governments to implement core Clean Water Act programs, e.g., develop and implement Total Maximum Daily Loads (TMDLs), implement the discharge permit program, urban storm water controls and nonpoint source control programs for all recreational waters;
- controlling combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs);
- improving the performance of malfunctioning onsite wastewater systems by working with state and local health departments to improve management programs.
- supporting strong state monitoring and public notification programs for coastal and Great Lakes beaches and expanding real time public access to internet-based beach information on EPA's website.

There are challenges in meeting the strategic targets, including:

- large recent changes in state's 2002 electronic data on recreational water quality which make it difficult to establish valid 2002 baselines against which to measure progress;
- uncertainty whether the Method Development Plan for waterborne disease outbreaks will yield the improvements necessary to establish a valid baseline.
- use of appropriate metrics to measure progress;
- inadequate time to demonstrate progress in 2005 and 2008 because of the length of time involved in implementing core water programs; and
- strengthened, more comprehensive monitoring programs could identify more recreation water quality problems than anticipated.

The Outline identifies the 2008 strategic targets, the FY 2005 interim strategic targets and

[1]The water safe for swimming subobjective is written in terms of "stream miles and lake acres" because the underlying data supporting this measure is from the 303(d) lists. However, the scope of this subobjective also includes coastal areas and Great Lakes waters covered by the BEACH Act where many of the Nation's beaches are found.

the program activity measures to support the strategic targets. Initial approaches for overcoming the challenges are outlined with the expectation that Regional Offices, with their states, will identify additional approaches as they finalize their strategic plans and targets.

2008 Strategic Targets

To allow increased use of our nation's coastal beaches, the following targets are identified:
(1) Protect the quality of recreational waters nationwide so that the number of waterborne disease outbreaks attributable to swimming in, or other recreational contact with the ocean, rivers, lakes, or streams will be reduced to not more than 8, measured as a five year average. (J)
(2) Coastal and Great Lakes beaches monitored by State beach safety programs will be open and safe for swimming in over 96% of the days of the beach season. (K)

FY 2005 Interim Strategic Targets

As of December 31, 2003 states submitted their "List of Waters" (i.e. list of beach names) to EPA. The total number of beaches increased from 2800 to more than 7000. In addition, we are still waiting for detailed information about the locations, advisories/closings and beach days that are linked to those new beach names. States are required to submit this additional information by the end of January, but our conversations with Regional Beach Coordinators and individual states indicate that many states have not completed their data system development and/or data transfer mechanisms.

EPA is now faced with a major, time-consuming data review to "reset the baseline". EPA will need to review the List of Waters to better understand the more than 4000 additions and approximately 1300 modifications to existing beach lists. After that we will review the associated information for locations, advisories, closings, days, etc. These measures will drive national and regional priorities, be linked to Division Director performance and pay awards, and to staff performance evaluations. The significant change in new data from the states makes the existing baseline data unreliable and extremely uncertain. This changes adds to existing uncertainty because this strategic measure reflects ambient water quality conditions (rather than programmatic measures) and thus is affected by weather events.

Recommendation: Reclassify this measure as a developmental measure.

Put this measure into a "Measure Development Plan" for 12 months. This would give EPA (OST and the Regional Beach Coordinators/Managers) time to complete the tasks outlined above and reset the baseline. We could then monitor the results of this new baseline to determine the completeness and reliability of this measure.

Program Activity Measures

By 2008, all coastal and Great Lakes States and territories will have adopted, for coastal recreational waters, water quality criteria for E.Coli and enterococci. (PAM-33) [FY 2002 baseline: 17 states].

By 2008, EPA will publish criteria for pathogens of concern for recreational waters. (PAM-34)

By 2008, 100% of significant public beaches will be monitored and managed under the BEACH Act Program. (PAM-35) [No data to assess FY2002 baseline, will do so in FY2004]

By 2008, 75% of communities with CSOs will have schedules in place to implement approved Long Term Control Plans (LTCPs). (PAM-36) [FY 2002 baseline: 772 CSO communities, 34% have submitted draft LTCPs; 17 have begun implementation]

Number of States that have adopted the Voluntary Management Guidelines for On-site/Decentralized Wastewater Treatment Systems. (cumulative) (indicator) (PAM-37) [FY 2002 baseline: 2 states]

Related Program Activity Measures

- Estimated annual reduction in pounds of pollutants discharged to waters as a result of NPDES permits for storm water, POTWs, CAFOs, CSOs, and industrial discharges. (PAM-62) [FY 2003 Baseline: 109 billion pounds annual reduction]
- By 2008, 100 percent of the TMDL's required for waters currently on the 303d list will be established or approved by EPA within 13 years of listing consistent with national policy. Annual targets will be based on state schedules or straight-line rates that ensure that the national policy is met. (PAM-52) [FY 2002 Baseline: TBD.]
- By 2008, 100% of States/Regions will have issued NPDES general permits requiring storm water management programs for Phase II municipalities (MS4S) (estimated annual load reduction of 4.1 billion pounds of pollutants). (PAM-58) [FY 2002 Baseline: 0 States/Regions]

APPROACHES

WHAT ARE THE MAJOR PROBLEMS/HOW WILL THEY BE ADDRESSED?

Pathogen sources

Excessive levels of pathogen indicators are frequently found in recreational waters. These indicate the potential presence of human pathogens.

We can achieve reductions in the sources of pathogens by implementing core Clean Water Act programs. The most recent 305(b) report that states submit show that 35%***** of the impairments are caused by pathogens. To correct this widespread problem we need to set appropriate water quality standards for recreational waters; establish appropriate TMDLs, and implement them through the NPDES permit and nonpoint source programs; and focus NPDES phase II storm water activities on MS4s located near recreational waters.

We must more effectively implement the 1994 CSO Control Policy to achieve water quality improvements. CSO communities and States have not yet integrated the development of the long-term control plan (LTCP) with the review of water quality standards for CSO-impacted waters. Also, NPDES permitting authorities face challenges in reviewing and approving the LTCPs submitted as well as issuing appropriate enforceable mechanisms with implementation schedules. To improve our current implementation, EPA will:

(1) Continue to provide technical guidance and assistance, workshops, and demonstrations. EPA has conducted three technical workshops for EPA regional and state NPDES staff on the review of LTCPs and is providing technical assistance in reviewing certain submitted LTCPs.

(2) Provide technical support, outreach, training and workshops to assist states with designating uses. This will include potential demonstration projects relating to the review of water quality standards for CSO-impacted waters (including use attainability analyses) in conjunction with communities' development and implementation of LTCP as well as detailed annual tracking of progress in coordinating water quality standards reviews with the development of LTCPs, including the identifications of specific barriers to the coordination.

(3) Assist state and local governments in their control of onsite and decentralized systems, which have been implicated in contributing to increased levels of pathogens in recreational waters. Success in this area depends on developing a complete action plan on the public health and environmental impacts from onsite/decentralized wastewater treatment systems; identifying and collecting existing data; and developing an approach for obtaining missing data to use in providing a national perspective on impacts from onsite/decentralized systems.

**35% of assessed waters were impaired for pathogens in 2000 305(b) report (page12)*

Monitoring and public notification

We must support state monitoring and public notification programs that alert the public to when recreation may be unsafe and augment knowledge about the presence of pathogens. We will do this through continued administration of the BEACH Act program including completion of the PRAWNS database and BEACON data display system and by continuing to conduct the National Health Protection Survey of Beaches with a focus on increasing participation of inland states.

Enforcement

A continuing focus of enforcement on pathogen sources to recreational waters will help. In this regard, OECA's priorities for FY 2005 through 2007 are CAFOs and wet weather point sources, all of which are sources of pathogens.

Specific regional action

Regions are establishing regional specific strategies that focus on monitoring and source control for recreational waters.

- # Region 1 Beach Strategy – Reduce beach closures in New England by:
  - < supporting appropriate and consistent, high-quality monitoring and public notification;
  - < providing financial and technical assistance to support sanitary surveys to identify and eliminate sources of bacteria and pathogens;
  - < conducting extensive public outreach on the strategy and the importance of reducing pollution sources;
  - < supporting new technologies to improve our ability to identify pollution sources (e.g., microbial source tracking) and eliminate them (e.g., innovative storm water controls).
- # Region 5 is implementing their Great Lakes Beach Strategy
- # Region 9 Coastal Beach Strategy . Further increase the safety of those swimming at coastal beaches through states' monitoring efforts and targeted actions to address sources of poor coastal water quality.
  - < TMDLs are a key tool to address water bodies impaired for swimming.
  - < Based on the states' 2002 303(d) lists, there are approximately 245 pathogen/waterbody combinations needing TMDLs, with 80 such TMDLs projected for completion by 2005 (20 finished to date).
  - < The Region is partnering with states to increase their rate of developing high-priority TMDLs, especially for waters with recreational use impairments due to bacteria or pathogens.
  - < Southern California has the highest number of beach user days in the nation, greater than all other beaches combined. To address the problem of closures at these heavily used beaches, storm water and sanitary sewer overflows will be the focus of efforts to improve coastal water quality.
  - < Audits have been conducted on many municipal storm water sewer systems (MS4s) and the state has follow up compliance actions.

- Future audits of MS4s are expected.
- Sanitary sewer overflows are being addressed by targeting all municipal sewer systems in southern California, and taking enforcement actions (6 in FY 2003) against cities needing infrastructure repair and upgrades.

CHALLENGES

Strengthening the information and measures to track the safety of recreational waters and to track beach health.

Measuring illness outbreaks

Significant challenges exist to the successful attainment of these goals, not the least of which is how to measure the 2008 Strategic Target for reducing the number of waterborne disease outbreaks. This challenge is recognized in the FY 2005 budget document which states that EPA will conduct a Measure Development Plan for this target. EPA (OST and ORD) will complete the Measure Development Plan by working with the Center for Disease Control (CDC) and the Council of State and Territorial Epidemiologists (CSTE) to increase the reporting on disease outbreaks and the reliability of the information reported.

The form which is now being used to collect the voluntarily reported data just recently received OMB approval. It will take five (5) years to get a full cycle of data using the new form. Data are stored on an internal ORD database. Because outbreaks are under reported, ORD will work with CDC and the CSTE on an outreach plan to expand participation in the collaborative surveillance system for tracking the occurrences and causes of waterborne-disease outbreaks. By FY 2006, confirm the FY 2008 target (8 recreational waterborne contact outbreaks reported per year, measured as a five year average). ORD is exploring with CDC the possibility of posting reports from the database with appropriate links to EPA's beaches web site (http://www.epa.gov/waterscience/beaches).

Metric for tracking beach days open

The Strategic Target that characterizes the extent to which coastal and Great Lake beaches are open (percent days that a beach is open) includes a time dimension but not a spacial dimension. As a result, a beach for which only part of the beach is closed is considered identical to a beach that is completely closed. Beach Mile-Days (BMD) is a better metric to measure the protection of beaches. For example, if an area has 50 miles of beaches which are used every day, the area has 18, 250 BMDs available (50x365). However if 15 of the 50 miles are closed or posted for 10 days, then 150 BMDs are not available. A beach impairment of 0.8% (150/18250 x 100) may be more meaningful than simply tracking the number of days a beach of unspecified size is open. States will need to provide EPA with the length of beaches closed or under advisory for EPA to use this metric.

Coastal and Great Lakes states and territories are now identifying those beaches that will be monitored and those that will not, and will submit this information to EPA along with the length of the beach. This process will allow EPA to standardize how beaches are counted by

counting beach miles.

EPA has established miles of beach under advisory or closed as a required reporting element for those coastal and Great Lakes states and territories that have received BEACH Act grants. All 35 grant eligible states and territories have received these grants. Once this information is available for all beaches, EPA will be able to revise the strategic target to the percentage of "mile-days" of beaches open and safe for swimming.

Tracking On-site/Decentralized Wastewater Treatment Systems

The administrative program activity indicator for on-site systems tracks the number of States that have adopted the Voluntary Management Guidelines for On-site/Decentralized Wastewater Treatment Systems. It fails to track public health or environmental improvements to be obtained by adoption of the Guidelines. Limited amounts of anecdotal information exist; however, supporting data which specifically identify onsite systems as sources are not typically available. State health departments are not required to collect this information, resulting in the lack of a national perspective. Also, failures of onsite systems are not reported until an occurrence is visually observed. Another measure will need to be developed.

Survey data from year to year changes

The 2003 survey results (received the week of January 25, 2004) listed 7,000 identified beaches. 2002's survey listed just under 3,000. Therefore, measuring the regional and strategic targets using the correct baseline and metrics will be a challenge. The beach team in HQ is reviewing the issue to determine how the new survey data will be incorporated into this plan.

Comparing recreational water quality or comparing the numbers of beach closure/posting days across states can be misleading.

A difference in indicators

Tracking the safety of recreational waters is limited by differences in indicators states use to measure attainment (e.g., E.coli/enterococci indicators versus total or fecal coliform in EPA's 1986 published criteria versus total or fecal coliform indicators in EPA's previous criteria documents). Although all states currently have water quality standards that include a pathogen criterion, only 14 of 56 states and territories use E coli and/or enterrococci indicators. This means that there is a difference in the degree of protection afforded by the WQS between states.

The BEACH Act requires coastal and Great Lakes states to adopt EPA's published criteria in their standards (or criteria as protective as EPA's) by April 2004 or else EPA must propose these criteria for the water quality standards. EPA is starting action to help the states to meet this requirement. There is no similar statutory requirement for inland waters.

Without comparable indicators of impairment for all recreational waters, EPA may not be able to aggregate inland recreational water quality with coastal and Great Lakes recreational water quality.

Difference in the timing of beach advisories

Tracking the health of beaches over time is also complicated by differences in the criteria that states and localities use to issue advisories or close beaches and in how states define beaches. Some states have much more extensive (both in terms of frequency and parameters) monitoring than other states. For example, California beaches may be posted after rainfall events, as a precaution to protect swimmers from potential storm water impacts, without documented water quality impairments.

EPA published BEACH Act grant performance criteria in July 2002 that contains requirements intended to reduce differences in making decisions on when to issue a beach advisory or close a beach because Coastal and Great Lakes states are revising their programs to meet these criteria in order to receive Beach Act grants. States are just now revising their programs to meet these criteria.

EPA will hold a national meeting on beach programs to help states share information about their decision process and thus indirectly encourage a move towards a more consistent national approach.

EPA is collecting the underlying water quality data to support the closure or advisory. Analyses of these data over time may provide a stronger trend analysis of beach health. Any trend analysis will be affected by year-to-year variables, such as the weather and the amount of monitoring being conducted. A wet year and more monitoring are likely to trigger more closures or advisories.

Timing of source controls may not be soon enough to achieve environmental target.

The schedule is too aggressive; 2005 [and 2008] may not provide sufficient time to develop and implement pathogen TMDLs and adjust controls as necessary. The strategic target is based on the expected scheduling of TMDLs based on the 303(d) list, which was used to as the basis of the strategic target.

WHERE SHOULD PRIORITIES BE PLACED?

Will one (or more) of the program activity measures lead to greater improvements in recreational water quality and on which more emphasis should be placed?

The activities under this subobjective that control pathogen sources (PAM-36, PAM-37) along with related activities under the watershed subobjective (PAM-52, PAM-58, AND PAM-62) all serve to reduce the pathogen loadings to surface waters. Where these activities are carried out in recreational waters, they have the greatest opportunity to achieve the strategic targets.

About 60% of the known causes of beach closures and advisories are NPDES regulated (POTWs, CSOs, SSOs, storm water, sewage blockages), so activities associated with the NPDES

program have a greater opportunity for achieving the strategic targets.